



Exhumation history from East to West of the Himalaya inferred from detrital thermochronology

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Detrital apatite fission-track (AFT) analysis from synorogenic sediment, derived from the erosion of mountain belts and deposited in sedimentary basins, is a well-established tool to examine the cooling and exhumation history of convergent zones.

The recent dynamics of the Himalaya are studied with the specific goal of quantifying exhumation along this orogen. We study 3 stratigraphic sections within the Miocene to Pliocene Siwaliks group located from West to East in central Pakistan, eastern Nepal, and eastern India (Arunachal Pradesh). The results provide information on potential variability in exhumation rates between central the Himalaya and the western Himalaya.

We present new detrital AFT data from 14 samples from central Pakistan (Chinji section) and eastern Nepal (Muskar section). For the east India section (Kameng section), we present an overview of ongoing work of this poorly known area of the Siwaliks. We compiled a magnetostratigraphic, sedimentologic and structural profile along this section. Apatite and zircon samples are currently being prepared for FT analysis.

Finally, we investigate a potential climate effect on exhumation caused by the spatial variability of the monsoon intensity along the range. Precipitation are known to decrease westward, a situation that probably well established millions of years ago (Fluteau et al., 1999). This climate forcing may explain some variability of the exhumation pattern shown in our detrital data.